

IN THE CLAIMS:

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1. (Currently Amended) A method for detecting defects in a material, comprising:  
obtaining an image of at least a portion of a material's surface;  
converting the image into an intensity profile; ~~and~~  
selecting an intensity line profile from the intensity profile;  
counting a number of defect intensity pixels from the intensity line profile; and  
determining a defect density in the material's surface from the intensity line profile of the  
intensity profile.

a<sup>1</sup>  
2. (Original) The method as recited in Claim 1 wherein obtaining an image includes  
obtaining an electron image.

3. (Original) The method as recited in Claim 2 wherein obtaining an electron image  
includes obtaining an electron image using a scanning electron microscope.

Kindly cancel Claims 4-5 without prejudice or disclaimer.

6. (Currently Amended) The method as recited in Claim 5 1 further including selecting  
a plurality of intensity line profiles from the intensity profile and ~~determining a defect in each of the~~  
~~plurality of intensity line profiles~~ counting a number of defect intensity pixels from the plurality of  
intensity line profiles, and further determining the defect density in the material's surface from the  
plurality of intensity line profiles of the intensity profile.

Kindly cancel Claim 7 without prejudice or disclaimer.

8. (Currently Amended) The method as recited in Claim 1 wherein determining a defect density of the material's surface includes determining a total number of intensity pixels.

9. (Original) The method as recited in Claim 8 wherein determining a total number of intensity pixels includes determining a number of background intensity pixels and a number of defect intensity pixels.

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10. (Currently Amended) The method as recited in Claim 9 ~~further including~~ wherein determining a defect density ~~by~~ includes dividing the number of defect intensity pixels by the total number of intensity pixels.

11. (Original) The method as recited in Claim 9 wherein the total number of intensity pixels comprise a histogram and the background intensity pixels are inside a desired sigma value and the defect intensity pixels are outside the desired sigma value.

12. (Original) The method as recited in Claim 11 wherein the desired sigma value is greater than about 2 sigma.

13. (Original) The method as recited in Claim 12 wherein the desired sigma value is greater than about 4 sigma.

14. (Original) The method as recited in Claim 10 wherein the intensity profile includes a plurality of pixels and determining a defect of the material's surface further includes determining an average intensity of the plurality of pixels or determining a standard deviation of the intensity profile.

a<sup>1</sup> 15. (Original) The method as recited in Claim 10 wherein the number of defect intensity pixels does not include the number of defect intensity pixels having an intensity greater than an average intensity.

16. (Original) The method as recited in Claim 1 wherein obtaining an image of at least a portion of a material's surface includes obtaining an image of an inner surface of a tubing located in a semiconductor wafer manufacturing facility.

17. (Currently Amended) A system for detecting defects in a material, comprising:  
a first subsystem that obtains an image of at least a portion of a material's surface; and  
a second subsystem that ~~converts the image into an intensity profile and determines a defect in the material's surface from the intensity profile~~ that converts the image into an intensity profile, selects an intensity line profile from the intensity profile, counts a number of defect intensity pixels from the intensity line profile, and determines a defect density in the material's surface from the intensity line profile of the intensity profile.

18. (Original) The system as recited in Claim 17 wherein the first subsystem includes a scanning electron microscope that obtains an electron image.

19. (Original) The system as recited in Claim 17 wherein the second subsystem includes a computer subsystem including an operator interface.

Kindly cancel Claims 20-21 without prejudice or disclaimer.

a<sup>1</sup> 22. (Original) The system as recited in Claim 17 wherein the second subsystem determines a total number of intensity pixels.

23. (Original) The system as recited in Claim 22 wherein the total number of intensity pixels includes a number of background intensity pixels and a number of defect intensity pixels.

24. (Currently Amended) The system as recited in Claim 23 wherein ~~the second subsystem further determines~~ determining a defect density ~~by~~ includes dividing the number of defect intensity pixels by the total number of intensity pixels.

25. (Original) The system as recited in Claim 23 wherein the total number of intensity pixels comprise a histogram and the background intensity pixels are inside a desired sigma value and the defect intensity pixels are outside the desired sigma value.

26. (Original) The system as recited in Claim 25 wherein the desired sigma value is greater than about 2 sigma.

27. (Original) The system as recited in Claim 26 wherein the desired sigma value is greater than about 4 sigma.

28. (Original) The system as recited in Claim 17 wherein the material is a tubing located in a semiconductor wafer manufacturing facility.

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29. (Currently Amended) A method of using a system for detecting defects in a material, comprising:

detecting defects in a material, including;

obtaining an image of the material's surface;

converting the image into an intensity profile; and

concl  
selecting an intensity line profile from the intensity profile;

counting a number of defect intensity pixels from the intensity line profile; and

determining defects in the material's surface from the intensity line profile of the  
intensity profile; and

rejecting the material based upon a number of the defects in the material's surface.

30. (Original) The method as recited in Claim 29 wherein the material is a subset of a batch of the material and rejecting includes rejecting the batch of the material.